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10/695,475	10/28/2003	Ying Chen	ARC920030067US1	5009
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Frederick W. Gibb, III McGinn & Gibb, PLLC Suite 304 2568-A Riva Road Annapolis, MD 21401			AHMED, ENAM	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/695,475	CHEN ET AL.	
	Examiner	Art Unit	
	ENAM AHMED	2112	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 31 October 2008.

2a) This action is **FINAL**. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-12, 14-20 and 22-26 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1-12, 14-20 and 22-26 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

- Certified copies of the priority documents have been received.
- Certified copies of the priority documents have been received in Application No. _____.
- Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.

4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.

5) Notice of Informal Patent Application

6) Other: _____.

Detailed Action

Final

- is office action is in response to applicant's amendment filed on 10/31/08.

Response to amendment

Applicants arguments have been fully considered, and are found persuasive only to the extent that new reference Barron et al. (U.S. Patent No. 7,093,158) teaches "maintaining a directory of updated data blocks, said updated data blocks comprising ones of said data blocks that have received a write operation and a corresponding write operation to a corresponding redundant storage block has not been made" (column 5, lines 4-50), and further new reference Johnson et al. (U.S. Patent No. 6,219,800) teaches "only updating redundant storage blocks corresponding to said updated data blocks at a time when the disk array is relatively idle, thereby reducing the impact on foreground disk array performance" (column 1, lines 23-34) and (column 3, lines 19-32).

Response to applicant's remarks

On page 10, the applicant mentions neither Wiencko, nor Dunn, nor any alleged combination thereof, teaches or suggests, "maintaining a directory of updated data blocks, said updated data blocks comprising ones of said data blocks that have received a write operation and a corresponding write operation to a corresponding redundant storage block has not been made," and "only updating redundant storage blocks corresponding to said updated data blocks at a time

when the disk array is relatively idle, thereby reducing the impact on foreground disk array performance".

The examiner respectfully agrees with the statement, however points out new reference Barron et al. (U.S. Patent No. 7,093,158) teaches "maintaining a directory of updated data blocks, said updated data blocks comprising ones of said data blocks that have received a write operation and a corresponding write operation to a corresponding redundant storage block has not been made" (column 5, lines 4-50), and further new reference Johnson et al. (U.S. Patent No. 6,219,800) teaches "only updating redundant storage blocks corresponding to said updated data blocks at a time when the disk array is relatively idle, thereby reducing the impact on foreground disk array performance" (column 1, lines 23-34) and (column 3, lines 19-32).

35 U.S.C. 103

a. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wiencko, Jr. et al. (U.S. Patent No. 6,557,123), Barron et al. (U.S. Patent No. 7,093,158) in view of Johnson et al. (U.S. Patent No. 6,219,800).

With respect to claim 1, the Wiencko, Jr. et al. reference teaches writing [[a]] at least one data blocks to s first disk of said disk array(column 15, lines 47-48); asynchronously with said writing to said first disk, storing at least one of redundant data block corresponding to

said at least one data block in at least one spare disk of said disk array (column 2, lines 30-47) and predicting if said first disk will fail and if said first disk is predicted to fail in said disk array (column 1, line 57 - column 2, line 61) and (column 3, lines 26-32). The Wiencko, Jr. et al. reference does not teach maintaining a directory of updated data blocks, said updated data blocks comprising ones of said data blocks that have received a write operation and a corresponding write operation to a corresponding redundant storage block has not been made and only updating redundant storage blocks corresponding to said updated data blocks at a time when the disk array is relatively idle, thereby reducing the impact on foreground disk array performance. The Barron et al. reference teaches maintaining a directory of updated data blocks, said updated data blocks comprising ones of said data blocks that have received a write operation and a corresponding write operation to a corresponding redundant storage block has not been made (column 5, lines 4-50). The Johnson et al. reference teaches and only updating redundant storage blocks corresponding to said updated data blocks at a time when the disk array is relatively idle, thereby reducing the impact on foreground disk array performance (column 1, lines 23-34) and (column 3, lines 19-32). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to have combined the references Wiencko, Jr. et al. and Barron et al. to incorporate maintaining a directory of updated data blocks, said updated data blocks comprising ones of said data blocks that have received a write operation and a corresponding write operation to a corresponding redundant storage block has not been made into the claimed invention. The motivation for maintaining a directory of updated data blocks, said updated data blocks comprising ones of said data blocks that have received a write operation and a corresponding

write operation to a corresponding redundant storage block has not been made is for faster processing speeds. Thus, it would also have been obvious to one of ordinary skill in the art at the time of the invention was made to have combined the references Wiencko, Jr. et al. and Johnson et al. to incorporate and only updating redundant storage blocks corresponding to said updated data blocks at a time when the disk array is relatively idle, thereby reducing the impact on foreground disk array performance into the claimed invention. The motivation for and only updating redundant storage blocks corresponding to said updated data blocks at a time when the disk array is relatively idle, thereby reducing the impact on foreground disk array performance is for overall improved system performance with faster processing speeds.

With respect to claim 2, all of the limitations of claim 1 have been addressed. The Wiencko, Jr. et al. reference does not teach wherein said maintaining of said directory is based on a function. The Barron et al. reference teaches wherein said maintaining of said directory is based on a function (column 5, lines 4-50). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to have combined the references Wiencko, Jr. et al. and Barron et al. to incorporate wherein said maintaining of said directory is based on a function into the claimed invention. The motivation for wherein said maintaining of said directory is based on a function is for achieving a high degree of reliability.

With respect to claim 3, the Wiencko, Jr. et al. reference teaches wherein said function comprises a mathematical function (column 14, lines 35-39).

With respect to claim 4, the Wiencko, Jr. et al. reference teaches wherein said function comprises an error correcting code (column 7, lines 1-4).

With respect to claim 5, all of the limitations of claim 1 have been addressed. The Wiencko, Jr. et al. reference does not teach said maintaining of said directory comprising maintaining an address of [[a]] said data blocks corresponding to a set of addresses of said redundant data blocks that require updating. The Barron et al. reference teaches said maintaining of said directory comprising maintaining an address of [[a]] said data blocks corresponding to a set of addresses of said redundant data blocks that require updating (column 5, lines 4-50). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to have combined the references Wiencko, Jr. et al. and Barron et al. to incorporate said maintaining of said directory comprising maintaining an address of [[a]] said data blocks corresponding to a set of addresses of said redundant data blocks that require updating into the claimed invention. The motivation for said maintaining of said directory comprising maintaining an address of [[a]] said data blocks corresponding to a set of addresses of said redundant data blocks that require updating is for achieving a high degree of reliability.

With respect to claim 6, the Wiencko, Jr. et al. reference teaches wherein said disk array comprises at least one a RAID array (column 24, lines 16-34).

With respect to claim 7, the Wiencko, Jr. et al. reference teaches comprising reconstructing data stored on a failed disk onto at least one replacement disk (column 2, lines 10-11) and (column 6, lines 64-67).

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wiencko, Jr. et al. (U.S. Patent No. 6,557,123), Barron et al. (U.S. Patent No. 7,093,158), Johnson et al. (U.S. Patent No. 6,219,800) in view of Minow et al. (U.S. Patent No. 6,021,462).

With respect to claim 8, all of the limitations of claim 1 have been addressed. The Wiencko, Jr. et al. does not teach wherein if an amount of said updated data block exceeds a fraction of said data stored in said disk array, said method further comprises only updating said redundant storage blocks corresponding to said updated data blocks. The Minow et al. reference teaches wherein if an amount of said updated data block exceeds a fraction of said data stored in said disk array, said method further comprises only updating said redundant storage blocks corresponding to said updated data blocks (column 1, lines 30-58). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to have combined the references Wiencko, Jr. et al. and Minow et al. to incorporate wherein if an amount of said updated data block exceeds a fraction of said data stored in said disk array, said method further comprises only updating said redundant storage blocks corresponding to said updated data blocks into the claimed invention. The motivation for wherein if an amount of said updated data block exceeds a fraction of said data stored in said disk array, said method further comprises only updating said redundant storage blocks corresponding to said updated data blocks is for achieving a high degree of reliability.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wiencko, Jr. et al. (U.S. Patent No. 6,557,123), Barron et al. (U.S. Patent No. 7,093,158), Johnson et al. (U.S. Patent No. 6,219,800) in view of Sasamoto et al. (U.S. Patent No. 6,442,711).

With respect to claim 9, all of the limitations of claim 1 have been addressed. The Wiencko, Jr. et al. reference does not teach wherein whenever the load on the disk array is below a threshold value, said method further comprises only updating said redundant storage blocks corresponding to said updated data blocks. The Sasamoto et al. reference teaches

wherein whenever the load on the disk array is below a threshold value, said method further comprises only updating said redundant storage blocks corresponding to said updated data blocks (column 1, lines 46-55). Thus it would have been obvious at the time of the invention was made to a person having ordinary skill in the art at the time of the invention was made to have combined the references Wiencko, Jr. et al. and Sasamoto et al. to incorporate wherein whenever the load on the disk array is below a threshold value, said method further comprises only updating said redundant storage blocks corresponding to said updated data blocks into the claimed invention. The motivation for wherein whenever the load on the disk array is below a threshold value, said method further comprises only updating said redundant storage blocks corresponding to said updated data blocks is for optimizing performance.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wiencko, Jr. et al. (U.S. Patent No. 6,557,123), Barron et al. (U.S. Patent No. 7,093,158), Johnson et al. (U.S. Patent No. 6,219,800) in view of Dunn et al. (U.S. Patent No. 6,112,255).

With respect to claim 10, all of the limitations of claim 1 have been addressed. The Wiencko, Jr. et al. reference does not teach comprising preferentially updating redundant data blocks that are less likely to be altered again are preferentially updated. The Dunn et al. reference teaches comprising preferentially updating redundant data blocks that are less likely to be altered again are preferentially updated (column 2, lines 11-29). Thus it would have been obvious at the time of the invention was made to a person having ordinary skill in the art at the time of the invention was made to have combined the references Wiencko, Jr. et al. and Dunn et al. to incorporate comprising preferentially updating redundant data blocks that are less likely to be altered again are preferentially updated into the claimed invention.

The motivation for comprising preferentially updating redundant data blocks that are less likely to be altered again are preferentially updated is for optimizing performance.

Claims 11-12 and 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dunn et al. (U.S. Patent No. 6,112,255), Wiencko, Jr. et al. (U.S. Patent No. 6,557,123) Barron et al. (U.S. Patent No. 7,093,158) in view of Johnson et al. (U.S. Patent No. 6,219,800).

With respect to claim 11, the Dunn et al. reference teaches periodically storing redundant data into data blocks located on a spare disk (column 2, lines 30-47); determining which of said data blocks comprise updated data blocks (column 8, line 11 – column 9, line 39). The Dunn et al. reference does not teach monitoring disks in said disk array for predicted disk failures; said updated data blocks comprising ones of said data blocks that have received a write operation and a corresponding write operation to a corresponding redundant storage block has not been made and if a first disk is predicted to fail in said disk array, only updating redundant storage blocks corresponding to said updated data blocks of said first disk at a time when the disk array is relatively idle, thereby reducing impact on foreground disk array performance. The Wiencko, Jr et al. reference teaches monitoring disks in said disk array for predicted disk failures and if a first disk is predicted to fail in said disk array (column 1, line 57 - column 2, line 61) and (column 3, lines 26-32). The Barron et al. reference teaches said updated data blocks comprising ones of said data blocks that have received a write operation and a corresponding write operation to a corresponding redundant storage block has not been made (column 5, lines 4-50). The Johnson et al. reference teaches only updating redundant storage blocks corresponding to said updated data blocks of said first disk at a time when the disk array is relatively idle, thereby reducing impact

on foreground disk array performance (column 1, lines 23-34) and (column 3, lines 19-32). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to have combined the references Dunn et al. and Wiencko, Jr. et al. to incorporate monitoring disks in said disk array for predicted disk failures and if a first disk is predicted to fail in said disk array into the claimed invention. The motivation for monitoring disks in said disk array for predicted disk failures and if a first disk is predicted to fail in said disk array is for achieving a high degree of reliability. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to have combined the references Dunn et al. and Barron et al. to incorporate said updated data blocks comprising ones of said data blocks that have received a write operation and a corresponding write operation to a corresponding redundant storage block has not been made into the claimed invention. The motivation for said updated data blocks comprising ones of said data blocks that have received a write operation and a corresponding write operation to a corresponding redundant storage block has not been made is for faster processing speeds. Thus, it would also have been obvious to one of ordinary skill in the art at the time of the invention was made to have combined the references Dunn et al. and Johnson et al. to incorporate only updating redundant storage blocks corresponding to said updated data blocks of said first disk at a time when the disk array is relatively idle, thereby reducing impact on foreground disk array performance into the claimed invention. The motivation for only updating redundant storage blocks corresponding to said updated data blocks of said first disk at a time when the disk array is relatively idle, thereby reducing impact on foreground disk array performance is for faster processing speeds.

With respect to claim 12, all of the limitations of claim 11 have been addressed. The Wiencko, Jr. et al. reference does not teach wherein said maintaining of said directory is based on a function. The Barron et al. reference teaches wherein said maintaining of said directory is based on a function (column 5, lines 4-50). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to have combined the references Wiencko, Jr. et al. and Barron et al. to incorporate wherein said maintaining of said directory is based on a function into the claimed invention. The motivation for wherein said maintaining of said directory is based on a function is for achieving a high degree of reliability.

With respect to claim 14, the Dunn et al. reference teaches wherein said disk array comprises at least one a RAID array (column 1, lines 8-13).

With respect to claim 15, the Dunn et al. reference teaches comprising reconstructing data stored on a failed disk onto at least one replacement disk (column 3, lines 7-12).

With respect to claim 16, the Dunn et al. reference teaches wherein if an amount of said updated data block exceeds a fraction of said data stored in said disk array, said method further comprises only updating said redundant storage blocks corresponding to said updated data blocks (column 1, lines 30-58).

Claims 19-20 and 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dunn et al. (U.S. Patent No. 6,112,255), Wiencko, Jr. et al. (U.S. Patent No. 6,557,123) Barron et al. (U.S. Patent No. 7,093,158) in view of Johnson et al. (U.S. Patent No. 6,219,800)

With respect to claim 19, the Dunn et al. reference teaches a storage unit operable for periodically storing redundant data into data blocks located on a spare disk (column 2, lines 30-

47). The Dunn et al. reference does not teach a monitor operable for monitoring the disks in the array for disk failures; a directory operable for determining which of said data blocks comprises updated data blocks, said updated data blocks comprising ones of said data blocks that have received a write operation and a corresponding write operation to a corresponding redundant storage block has not been made and a computer operable for updating only redundant storage blocks corresponding to said updated data blocks at a time when the disk array is relatively idle, thereby reducing impact on foreground disk array performance. The Wiencko, Jr. et al. reference teaches a monitor operable for monitoring the disks in the array for disk failures (column 1, line 57 - column 2, line 61) and (column 3, lines 26-32). The Barron et al. reference teaches a directory operable for determining which of said data blocks comprises updated data blocks, said updated data blocks comprising ones of said data blocks that have received a write operation and a corresponding write operation to a corresponding redundant storage block has not been made (column 5, lines 4-50). The Johnson et al. reference teaches and a computer operable for updating only redundant storage blocks corresponding to said updated data blocks at a time when the disk array is relatively idle, thereby reducing impact on foreground disk array performance (column 1, lines 23-34) and (column 3, lines 19-32). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to have combined the references Dunn et al. and Wiencko, Jr. et al. to incorporate a monitor operable for monitoring the disks in the array for disk failures into the claimed invention. The motivation for a monitor operable for monitoring the disks in the array for disk failures is for achieving a high degree of reliability. Thus, it would also have been obvious to one of ordinary skill in the art at the time of the invention was made to have combined the references Dunn et al. and Barron et al. to incorporate

a directory operable for determining which of said data blocks comprises updated data blocks, said updated data blocks comprising ones of said data blocks that have received a write operation and a corresponding write operation to a corresponding redundant storage block has not been made into the claimed invention. The motivation for a directory operable for determining which of said data blocks comprises updated data blocks, said updated data blocks comprising ones of said data blocks that have received a write operation and a corresponding write operation to a corresponding redundant storage block has not been made is for faster processing speeds. Thus, it would also have been obvious to one of ordinary skill in the art at the time of the invention was made to have combined the references Dunn et al. and Johnson et al. to incorporate and a computer operable for updating only redundant storage blocks corresponding to said updated data blocks at a time when the disk array is relatively idle, thereby reducing impact on foreground disk array performance is for improving system performance and processing speeds.

With respect to claim 20, all of the limitations of claim 19 have been addressed. The Dunn et al. reference does not teach wherein said maintaining of said directory is based on a function. The Barron et al. reference teaches wherein said maintaining of said directory is based on a function (column 5, lines 4-50). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to have combined the references Dunn et al. and Barron et al. to incorporate wherein said maintaining of said directory is based on a function into the claimed invention. The motivation for wherein said maintaining of said directory is based on a function is for achieving a high degree of reliability.

With respect to claim 22, the Dunn et al. reference teaches at least one replacement disk operable for storing reconstructed data previously stored on a failed disk (column 3, lines 7-12).

With respect to claim 23, the Dunn et al. reference teaches wherein if an amount of said updated data blocks exceeds a fraction of said data stored in said disk array, said computer is further operable for only updating said redundant storage blocks corresponding to said updated data blocks (column 1, lines 30-58), (column 6, line 66 – column 7, line 15) and (column 8, line 11 – column 9, line 40)

With respect to claims 24, the Dunn et al. reference teaches wherein said disk array comprises at least one a RAID array (column 1, lines 8-13).

Claims 17-18 and 25-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dunn et al. (U.S. Patent No. 6,112,255), Wiencko, Jr. et al. (U.S. Patent No. 6,557,123), Barron et al. (U.S. Patent No. 7,093,158), Johnson et al. (U.S. Patent No. 6,219,800) in view of Sasamoto et al. (U.S. Patent No. 6,442,711).

With respect to claims 17 and 25, all of the limitations of claims 12 and 19 have been addressed. The Dunn et al. reference does not teach wherein whenever the load on the disk array is below a threshold value, said method further comprises only updating said redundant storage blocks corresponding to said updated data blocks. The Sasamoto et al. reference teaches wherein whenever the load on the disk array is below a threshold value, said method further comprises only updating said redundant storage blocks corresponding to said updated data blocks (column 1, lines 46-55). Thus it would have been obvious at the time of the invention was made to a person having ordinary skill in the art at the time of the invention was made to have combined the references Dunn et al. and Sasamoto et al. to incorporate wherein whenever the load on the disk array is below a threshold value, said method further comprises only updating said redundant storage blocks corresponding to said updated data blocks into the claimed invention. The motivation for wherein whenever the load on the

disk array is below a threshold value, said method further comprises only updating said redundant storage blocks corresponding to said updated data blocks is for optimizing performance.

With respect to claims 18 and 26, the Dunn et al. reference teaches further comprising preferentially updating redundant data blocks that are less likely to be altered again are preferentially updated (column 2, lines 11-29).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Enam Ahmed whose telephone number is 571-270-1729. The examiner can normally be reached on Mon-Fri from 8:30 A.M. to 5:30 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jacques Louis-Jacques, can be reached on 571-272-6962.

The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

EA

1/18/09

/Esaw T Abraham/

Primary Examiner, Art Unit 2112

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Art Unit: 2112

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